

New York Journal, October 25.—Big Hurricane Due. Weather Office issues Two Warnings to Shipping—Raging about Hatteras. "Use all available means to inform shipping and other interests of approaching storm which will cause winds of hurricane velocity on the coast."—Bulletin from the Chief of the Weather Bureau at 11 o'clock last night.

Wild weather was sweeping from the south last night. Within a few hours yesterday Chief Moore of the Weather Bureau at Washington issued two warning bulletins, the second more urgent than the first.

The very word "hurricane," coming from an official, a scientific source, is enough to give pause to those who go down to the sea in ships, and the news from Atlantic City, printed below, shows that the dreaded visitant or one of its kindred was hard upon New York last night.

Here is Chief Moore's first bulletin:

"Hoist hurricane signals at 2 p. m. at Breakwater, Reedy Island, Cape May, Sandy Hook, New York, Montauk Point, Newport section, Narragansett section, Woods Hole section, and Cape Cod section. Severe storm center near Cape Hatteras, moving northeast, likely to cause wind of hurricane velocity along the coast to-night."

The second bulletin from Washington is quoted at the head of this article.

New York Mail and Express, October 25.—The blow, according to the weather cracks, extends all along the coast from Cape Hatteras to Maine. The surf is cutting up great capers everywhere along this extensive stretch of strand, and telegraphic reports furnish particulars of considerable damage to board walks and even beach cottages. The Weather Bureau has instructed all its branches between the points mentioned to warn all vessels not to leave port. Monday is generally a slow sailing day, but the caution exercised the attention of not a few mariners. Several coastwise schooners cleared Sandy Hook outward bound shortly after daylight, but when their skippers subsequently saw the great carnival of green and white water outside, and the cautionary signals flying at the observatory at the Hook, they decided to return to the lower bay to give old *Achilles* a chance to tire out.

New York Tribune, October 26.—The Washington Weather Bureau early yesterday morning had hurricane signals hoisted along the Atlantic Coast from Florida to Maine, and as a consequence vessels intending to sail remained in port. At no time during the day did the wind in this harbor exceed 40 miles, but the steamers *Fluminense*, of the Red Cross Line, for Barbadoes, and the Clyde liner *Comanche*, for Charleston, the only passenger vessels scheduled to sail from here yesterday, refrained from venturing to sea. Some half dozen square riggers and schooners desirous of leaving port also remained at anchor in the roadstead about Liberty Island. There were anchored off Thompsonville, Staten Island, five United States cruisers of the White Squadron, which arrived here on Sunday, and altogether the harbor presented a thoroughly stormbound appearance.

RAIN WARNINGS FOR THE RAISIN DISTRICT.

The raisin crop of California is of immense pecuniary value, and during the drying season accurate weather forecasts are of great benefit. The slightest rain materially injures the product, and a heavy rain almost entirely destroys it, if not protected, so that the growers are largely dependent on the forecasts for the success of the crop.

Light rain, amounting to about 0.06 of an inch, fell in the raisin district around Fresno on October 5, beginning between 2 and 3 p. m. Warnings for this rain were issued from the San Francisco office at 10 a. m., and generally disseminated, so that the fruit was protected and no material damage done.

On the 13th and 14th general rain, beginning in the afternoon of the 13th, occurred throughout the raisin district of southern California, 0.17 of an inch occurring at Fresno, 0.04 at San Luis Obispo, 1.74 at Los Angeles, and 0.67 at San Diego. Rain warnings were given to nearly all sections of the State from twelve to thirty-six hours in advance, and all fruit and raisin driers advised to stack their trays. The value to those interests amounted to many hundreds of thousands of dollars. General and heavy rain fell throughout southern California on the night of the 23d, of which warning was given in the morning forecast of that date and widely distributed.

COMMENTS OF THE DAILY PRESS.

The work of the Weather Bureau in all these instances was highly commended by the public press, as shown by the following extracts:

Los Angeles Express, October 16, 1897.—The San Diego County raisin growers got thirty-six hours' notice of Wednesday night's storm, and were thus enabled to take precautions that saved their crops. The

Weather Bureau pays for itself many times over when it gives timely warning of one great storm. The establishment of a station in southern Nevada as contemplated will afford much needed protection to the fruit growers in the northern counties of southern California.

San Diego Sun, October 14, 1897.—Value of Weather Office. Some people are inclined to sneer at the United States Government for maintaining an expensive weather department, thinking its chief value to be in collecting records and statistics. But Manager Donald of the Boston ranch and other raisin growers in Cajon Valley, big and little, feel differently, for they know by experience that Uncle Sam's weather man has already saved them thousands of dollars on this one storm alone. Two days ago the office at San Francisco predicted probable showers, and Mr. Carpenter from the San Diego office sent out bulletins to all points in this region. Special efforts were made to keep Cajon Valley and the raisin district posted, and as a result the bulk of the crop, which is yet in the field, was gathered into stacks, covered and otherwise protected from the rains. A conservative estimate of the loss if the raisins had been left on the trays is \$15,000.

Extract from private letter to the Forecast Official, Weather Bureau, at San Francisco:

Your telegrams have saved thousands of dollars of raisins and hay. There are many men who take advantage of the predictions, in a matter of fact way, and though thankful say nothing.

Editorial in San Francisco Chronicle of October 25, 1897:

Weather News for Farmers. The Weather Bureau at San Francisco has done excellent forecast work this fall, partly because of the facilities given it on Mount Tamalpais, but mainly because of the scientific accuracy of Mr. Hammon. All the warnings so far sent out were promptly justified by the event. Raisin growers of the San Joaquin, on this account, have been able to anticipate storms and precipitation in time to get their grapes under cover.

San Francisco Bulletin, October 6, 1897.—The advantages of the Weather Bureau warnings were demonstrated by the fact that, in those districts where there was no station, the drying raisins have been injured. The aid given by the Southern Pacific and the Valley roads in disseminating intelligence has proved invaluable.

Orange, Cal., Post, October 23, 1897.—The predictions of rain sent out from the United States Weather Bureau saved the raisin makers of San Diego County thousands of dollars.

Editorial in San Francisco Chronicle of November 17, 1897:

Good Weather Service. The good record made by the local weather bureau this fall, in giving out rain forecasts to the raisin pickers, has received the official praise of the Agricultural Department. In his latest report Secretary Wilson says—

"The rain warnings issued from the San Francisco office for the benefit of the raisin industry during the drying season, and on the accuracy of which that industry is greatly dependent for success, were in every instance justified. The official in charge of the San Francisco office states in reference to the work of the Bureau in this particular that during the last three years not a single rain occurred in the raisin-drying region without warning, and in only one instance was an unnecessary warning issued."

We have spoken before of the accuracy of this service which, it may be added, has steadily improved since the Bureau was taken out of the Army, and which is now a dependable safeguard for farmers and horticulturists through the year. It would be difficult to make husbandry pay in this State in anything like its present scale or variety, except for the rain and frost warnings of the Weather Bureau. By means of these tens of thousands of dollars are annually saved in the vineyards alone. The good already done will, we hope, incline the California delegation to take a favorable view of the recommendation of Secretary Wilson that new stations be located in the southeastern part of California and in neighboring States and Territories, where conditions affecting our weather sometimes have birth. We can not enjoy too much of so good a thing as a service that eliminates the meteorological element of chance from farming interests.

AREAS OF HIGH AND LOW PRESSURE.

By Prof. H. A. HAZEN.

During October there were 10 high and 12 low areas of sufficient definiteness to be traced upon Charts I and II. Upon these charts the small circle shows the approximate position of each high and low at 8 a. m. and 8 p. m., eastern time. Within the circle is placed the reading of the barometer near the center and also the date. The principal facts regarding the place of origin and also of disappearance, the length and duration of each high and low, as also the velocity, is given in the accompanying table, and the following description is added.

HIGHS.

Five of the highs were first noted on or near the north Pacific Coast. Two of these reached the Atlantic Coast, the other three disappeared in the interior. The month was remarkable in that highs III, V, VII, VIII, and X began in the interior of the United States. All of the highs except II and IX were last noted off or near the Atlantic Coast.

Decided falls in temperature occurred in connection with these highs as follows: While II was in Idaho the temperature fell 28° in twenty-four hours at Huron, a. m. of 3d. On 9th, a. m., while IV was to the north of Montana there was a fall of 28° at Des Moines. As high VI passed into South Dakota, evening of 16th, there was a fall of 36° at Dodge City and Concordia. The next morning VI had moved to Wisconsin, and there was a fall in temperature of 36° at Northfield and of 32° at Oswego and Rochester. While high area IX moved to Wyoming on the evening of the 26th there was a temperature fall of 36° at Moorhead, and of 30° at Huron.

LOWS.

Two lows during the month, VII and XI, began in the eastern part of the Gulf of Mexico and moved up the Atlantic Coast. These storms were quite severe on several days and shipping was fully warned. Storms II, III, IV, V, and XII began to the north of Montana; I, IX, and X, off or near the north Pacific Coast; VI began and ended near the Rocky Mountain slope; and VIII began in Ontario. The last seen of I, V, IX was in Manitoba, or near Lake Superior; II, III, IV, VIII, and XII disappeared over Newfoundland; while VI and X were last noted in the Southwest.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long. W.	Length.	Duration.	Daily.	Hourly.
High areas.										
I.....	28, a. m.	0	0	5, p. m.	36	81	4,390	7.5	585	24.1
II.....	3, p. m.	47	123	7, p. m.	37	98	2,200	4.0	550	23.9
III.....	6, p. m.	48	101	9, a. m.	33	79	2,030	2.5	808	33.7
IV.....	7, a. m.	53	118	12, a. m.	48	55	3,390	5.0	658	27.4
V.....	12, a. m.	41	108	16, p. m.	34	76	2,780	4.5	618	25.8
VI.....	15, a. m.	43	121	19, p. m.	39	73	2,740	4.0	685	26.5
VII.....	19, a. m.	49	84	22, p. m.	43	69	1,350	3.5	398	16.1
VIII.....	19, p. m.	43	110	27, p. m.	44	60	3,650	8.0	456	19.0
IX.....	24, a. m.	43	128	29, p. m.	38	103	1,950	5.5	354	14.8
X.....	23, p. m.	34	93	1, a. m.	46	59	2,040	2.5	816	34.0
Total.....							26,410	47.0	5,916	.....
Mean of 10 tracks.....							2,641	.....	592	24.7
Mean of 47 days.....								.....	562	23.4
Low areas.										
I.....	29, p. m.	49	123	2, p. m.	54	108	1,170	3.0	390	16.2
II.....	3, p. m.	54	112	7, p. m.	47	55	2,700	4.0	675	26.1
III.....	6, p. m.	53	116	9, p. m.	47	53	2,980	3.0	960	40.0
IV.....	10, a. m.	54	116	13, a. m.	50	61	2,490	3.0	830	34.6
V.....	12, a. m.	53	117	14, a. m.	46	92	1,380	2.0	690	27.5
VI.....	13, p. m.	45	104	15, p. m.	38	106	880	2.0	410	17.1
VII.....	15, a. m.	22	84	21, a. m.	41	69	2,460	6.0	410	17.1
VIII.....	16, a. m.	47	77	17, p. m.	43	52	1,340	1.5	827	34.5
IX.....	20, p. m.	50	124	23, a. m.	52	93	1,440	2.5	576	24.0
X.....	22, p. m.	46	127	27, a. m.	31	95	2,940	4.5	631	26.3
XI.....	23, a. m.	24	81	26, p. m.	34	73	1,470	3.5	420	17.5
XII.....	26, p. m.	54	114	29, p. m.	49	53	2,700	3.0	900	37.5
Total.....							23,530	38.0	7,699	.....
Mean of 13 tracks.....							1,961	.....	641	26.7
Mean of 38 days.....								.....	619	25.8

CLIMATOLOGY OF THE MONTH.

By A. J. HENRY, Chief of Division of Records and Meteorological Data.

GENERAL CHARACTERISTICS.

Unusual warmth and dryness in almost all sections were the chief characteristics of the month.

From the 1st to the 10th occasional light rains prevailed in the Lake Region; elsewhere, the drought referred to in the September Review continued. From the 10th to the 13th general rains occurred throughout the Southwest, the Plains, the Mississippi Valley, and eastward to the Atlantic. In some regions the rains were light and drought still prevailed at the end of the month. An area of cloud and rain hovered over the Atlantic Coast from the 19th to the 30th, giving an abundance of moisture to the immediate coast region. On the 31st an area of low pressure appeared in the lower Mississippi Valley, and the month closed with prospects of good rains throughout the drought-stricken regions. The rainfall of Nevada, Utah, Wyoming, Colorado, portions of Texas, Kansas, Nebraska, and South Dakota was above the normal.

The weather was very favorable to the gathering of crops but too dry for seeding. Killing frosts came too late in the month to cause much damage.

There were no severe local or general storms. Heavy snows (13.2 inches at Denver) and high winds prevailed over Colorado and Wyoming on the 26th, causing a general blockade of street car lines and much damage to telegraph and telephone wires.

Heavy fog prevailed over the Great Lakes from the 24th to the 27th, inclusive, greatly impeding navigation and causing numerous strandings and minor casualties.

Forest fires were numerous in northern New York, Ohio,

and other regions, where the lack of rain greatly increased the danger of combustion.

ATMOSPHERIC PRESSURE.

[In inches and hundredths.]

Pressure was generally higher than usual, and the geographic distribution was not in close accord with normal conditions.

As will be seen by an examination of Chart IV, the eastern area of high pressure occupies the Middle States and New England instead of the South Atlantic States, as in months when normal conditions prevail. The Pacific high lies just to the northeast of the Great Basin and is inclosed by the isobar of 30.10 inches. Ordinarily this area of high pressure lies farther to the westward, and is generally bounded by an isobar opening on the Pacific Ocean.

The pressure distribution of the current month belongs to the dry weather type, of which a number of instances have occurred during the last twenty-five years. The month of October, 1879, furnishes almost an exact counterpart of the current month as regards the three elements, pressure, heat, and moisture.

The distribution of mean atmospheric pressure reduced to sea level, as shown by mercurial barometers, not reduced to standard gravity, and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), is shown by isobars on Chart IV. That portion of the reduction to standard gravity that depends on latitude is shown by the numbers printed on the right-hand border.

The numerical values of Table I should be consulted for additional details.